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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,141	12/09/2003	Yasunori Suzuki	246359US8	5899

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ALEXANDRIA, VA 22314

EXAMINER

FLANAGAN, KRISTA M

ART UNIT PAPER NUMBER

2817

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/730,141

Applicant(s)

SUZUKI ET AL.

Examiner

Krista M. Flanagan

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-8,10,14,15,18,25,26,28,32 and 33 is/are rejected.
- 7) ☒ Claim(s) 3,4,9,11-13,16,17,19-24,27,29-31 and 34-36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/13/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 22, first paragraph, filed 23 January 2006, with respect to the rejection(s) of claim(s) 1 and 32 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of US Patent No. 6,549,067 to Kenington.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

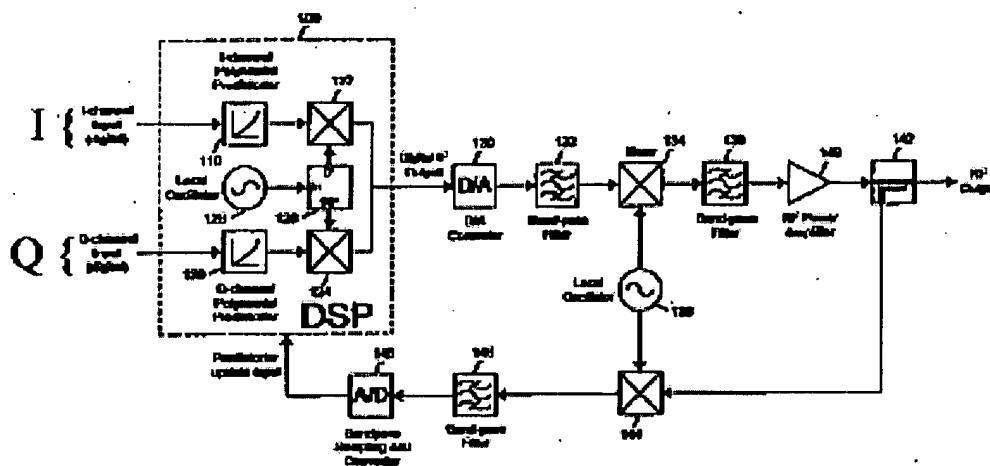
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 5-8, 10, 14, 15, 18, 25, 26, 28, 32 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 6,549,067 to Kenington.

4. Regarding claims 1, 5, 7-2, 8, 26, 28, 32 and 33, Kenington discloses a method and apparatus for linearizing an output signal. Kenington discloses a system comprising a DSP (100), which takes in in-phase and quadrature channels and separately, digitally predistorts (110 and 120; also see column 3, lines 1-8 and column 2, lines 6-18) them and then up-converts them to IF (122, 124, 126, 128). The IF signal is the sent through a DAC (130; also see column 3, lines 8-11) and up-converted to RF before amplification (132, 134, 136, 138 also see column 3, lines 11-23) by the power amplifier (140; also see column 3, lines 14-21 and 24-36). The pre-distorters are adapted using feedback supplied to the DSP (100) from the output of the amplifier from a splitter (142). The feedback signal is down-converted (136, 144, 146, 148; also see

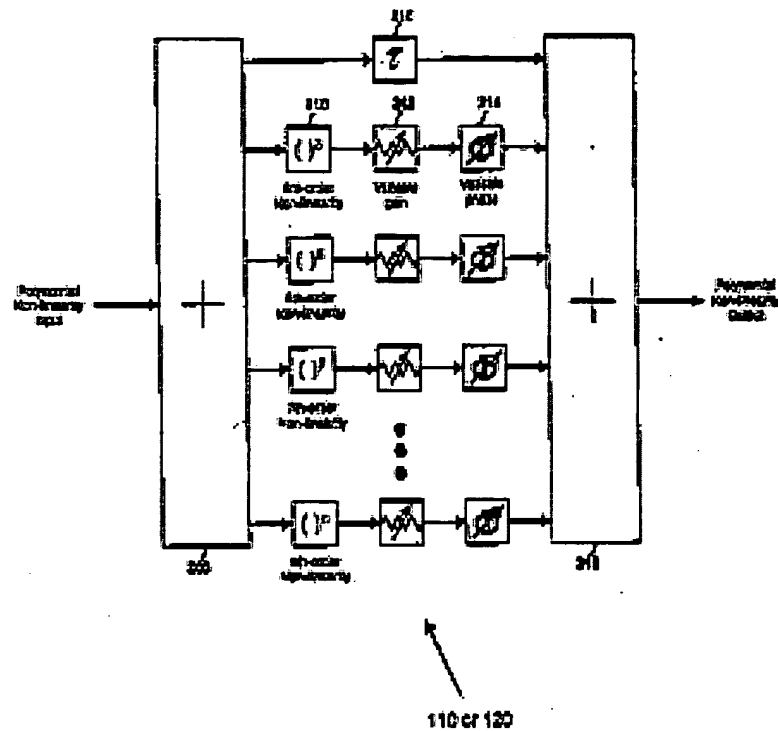
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column 3, lines 29-36) and sent through an ADC (148) before being coupled to the DSP (100) to update the predistorter (see column 3, lines 24-36). The system could also be modified to use a pilot signal, subject to cross modulation from the input signal during the up-conversion and the amplification process, which is created within the DSP (100) and added prior to up-conversion to IF (see column 6, line 61- column 7, line 8).

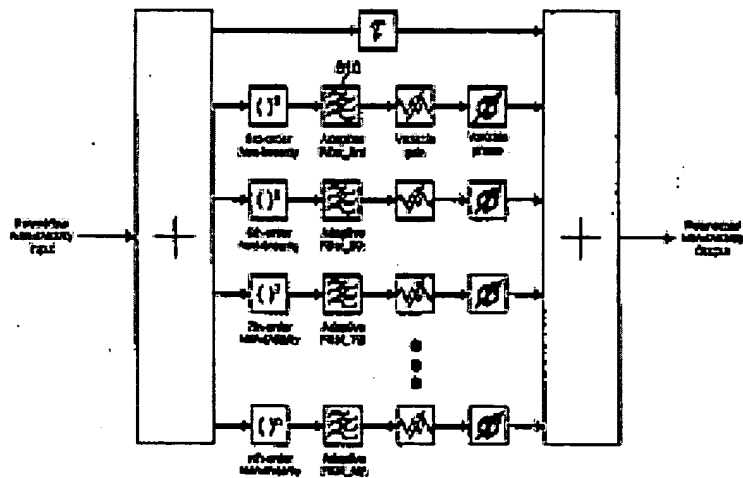


Insert 1: US Patent No. 6,549,067 to Kenington, figure 1

5. Regarding claim 2, 6-2, 10-2, 14, 15, 18 and 25, Kenington discloses digital pre-distorters (110 and 120) provides the input signal to a splitter where it is distributed to various components to generate various orders of distortion where the gain (212) and phase (214) are adjusted before the signal is supplied to a combiner (216). The basic predistortion scheme can be adjusted using an adaptive filter (610). The adjusted signals are recombined with the input signal after being delayed (218) and then input to a mixer (See figure 2 and corresponding text; figure 6 and corresponding text; column 6, line 61- column 7, line 8; and column 3, line 57- column 4, line 3).



Insert 2: US Patent No. 6,549,067 to Kenington, figure 2



Insert 3: US Patent No. 6,549,067 to Kenington, figure 6

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Allowable Subject Matter

6. Claims 3-4, 9, 11-13, 16, 17, 19-24, 27, 29-31 and 34-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

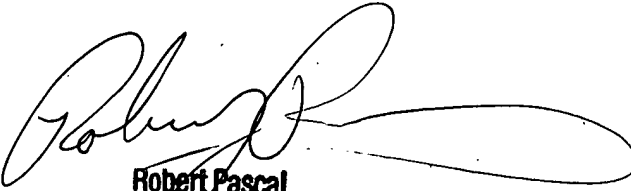
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krista M. Flanagan whose telephone number is (571) 272-2203. The examiner can normally be reached on Monday - Friday, 8 - 4:30.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K. Flanagan
20060411


Robert Pascal
Supervisory Patent Examiner
Technology Center 2800